Panel Presentation

NTSA

Testing and Training Partnering-
Industry and Community
Perspective

19 August, 1999

James E. Shiflett

James.E.Shiflett@cpmx.saic.com
407-207-2725

ASSET Group

SCIENCE APPLICATIONS INTERNATIONAL CORPORATION

Assumptions

○ Testing and training have some differing requirements

	Testing	Training
Repeatability	Multiple/identical	One to differing
Data Collection	Intense/Voluminous	Modest to intense
Accuracy	Very precise time/space/ position information	Approximate to very precise

○ Simulation can play a significant role in the augmentation, <u>not the replacement</u>, of traditional test & evaluation methodologies
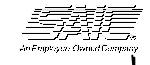
Mutual Interests

○ Prudent expenditure of appropriated funds

  – government should avoid paying for the same thing over and over

○ Levels of realism or fidelity adequate to the task

  – For training: Accomplishment of training objectives/successful training transfer

  – For testing: Specified conditions necessary for satisfactory conduct of test & evaluation

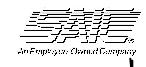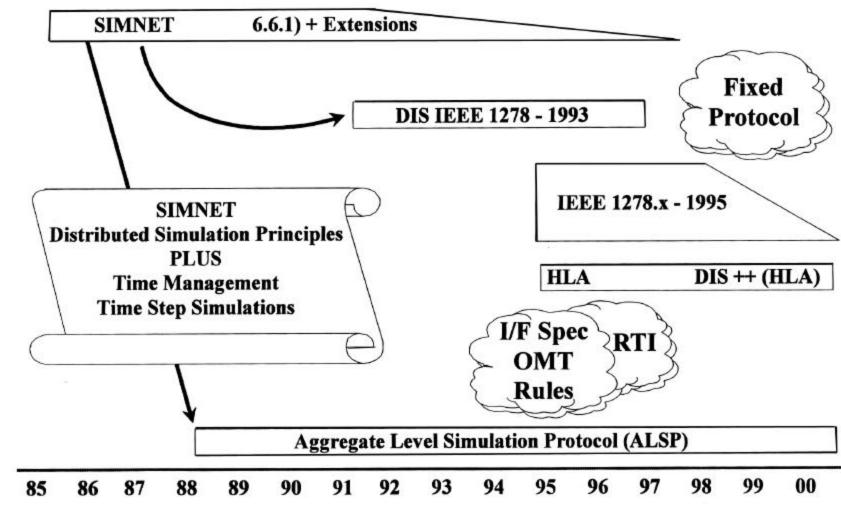*Science Applications International Corporation*

19 Aug 1999

Why Cooperate?

No Single Agency, Program, or PEO
Can Afford the Time and Money
to Build a Simulation Environment
to Support their Items of Interest

Science Applications International Corporation

19 Aug 1999

SIMNET   6.6.1) + Extensions

DIS IEEE 1278 - 1993

Fixed Protocol

SIMNET
Distributed Simulation Principles
PLUS
Time Management
Time Step Simulations

IEEE 1278.x - 1995

HLA   DIS ++ (HLA)

I/F Spec
OMT
Rules

RTI

Aggregate Level Simulation Protocol (ALSP)

| 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 00 |
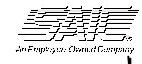
Interoperability

○ **M&S Interoperability:** the ability of a model or simulation to provide services to, and accept services from, other models and simulations, and to use the services so exchanged to enable them to operate effectively together. (DoD 5000.59-P)

○ **HLA (or DIS) Necessary but not Sufficient***

*The HLA is one of several equally important M&S infrastructure components/aspects which, when brought together in a technical framework, provide for interoperability and reuse opportunities. The HLA provides a structural basis for interoperability; most of the rules described in this standard ha e been included for that reason. Although the HLA is necessary for interoperability, it is not by itself sufficient. (HLA Interface Spec)

○ **DIS - Framework for Interoperability**

ORL-1163.NTSA.081999

DIS Definition of Interoperability

○ **Compliant**   **Same language**

     – A simulation/Simulator is DIS Compliant if it can send and receive Protocol Data Units (PDUs) in accordance with the IEEE 1278 specification.

○ **Compatible**   **Same Place**

     – Two of more Simulations/simulators are DIS compatible if (1) they are DIS Compliant and (2) their models and data that send and interpret PDUs support the realization of a common operation environment among the systems (Coherent in Time and Space).

○ **Interoperable**   **Meaningful Interactions**
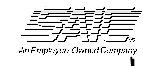
     – Two or more simulations/Simulators are DIS interoperable if (1) they are DIS Compatible and (2) when their performance characteristics support a fair fight to the fidelity required for the exercise.

○ **Fair Fight**

     – Two or more simulations may be considered to be in a fair fight when differences in the simulations' performance characteristics have significantly less effect on the outcome of the conflict than actions taken by the simulation participants.

ORL-1163.NTSA.081999

o We call simulation, training simulation or T&E simulation based on how we intend to use it - but the simulation does not know how it is used.

o There is no reason why both the training community and the testing community cannot use common simulation environments.

o There are both management challenges and technical challenges.

Science Applications International Corporation
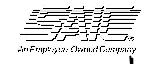
19 Aug 1999

Questions

- ○ What type of testing (OT,DT, Force Development)? - More than one flavor

- ○ What are the areas of interest and where can simulation help?

- ○ How can simulation be applied?

  - Pre Test

  - Post Test

Items for High Pay-Off

- Use of Standards

- Simulation Architecture - DIS/HLA

- Common Representation of the Physical World (SEDRIS)

- Behavioral Representation with man in the loop or VV&A SAF

ORL-1163.NTSA.081999